

MERLE CRAWFORD ANTHONY DI BENEDETTO

PHASE 1
Opportunity
Identification
and Selection

PHASE 2
Concept
Development

PHASE 3
Concept/Prototype
Evaluation

NEW PRODUCTS MANAGEMENT

PHASE 4
Launch

PHASE 5
Development

Marketing Tools

Technical Tools

water

NINTH EDITION

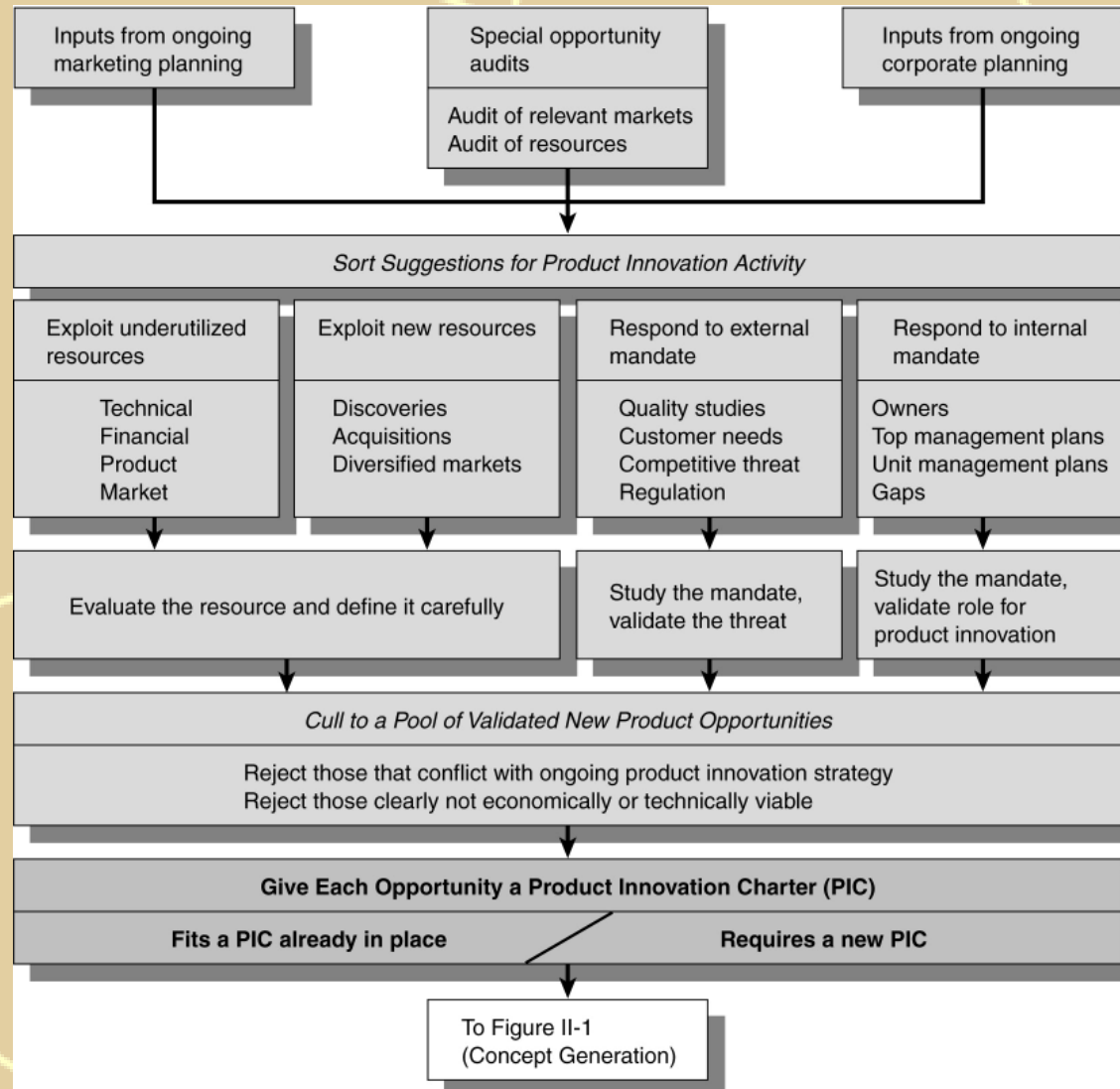
NEW PRODUCTS MANAGEMENT

PART ONE

OVERVIEW AND OPPORTUNITY IDENTIFICATION/SELECTION

Opportunity Identification and Selection

Figure I.1



Chapter 1

The Menu

Why Study New Products?

- New products are big business!
 - \$100 billion spent annually just on technical phase.
 - Uncounted new products are marketed every year.
 - A single Web site may market hundreds or thousands of products.
 - For many leading firms, a third or more of sales comes from products that are less than five years old.

Innovation as an Investment

- Investment in innovation is critical to firm growth and even survival.
- Radical innovations (those that displace or obsolete existing products) are particularly crucial to the firm.
- Technology leaders view “business growth through innovation” as a major challenge facing them today.

Some Hot New Products



Can you add more?

Some Hot New Products



Can you add more?

Some Hot New Products

Figure
1.1

iPhone
6

Image by Daniel de Blas



Some Hot New Products

Figure
1.1



Products of the Future



Figure
1.2

Products of the Future



Figure
1.2

Not All New Products Are Planned

Figure 1.3

- Microwave ovens
- ScotchGard fabric protector
- Teflon
- Penicillin
- X-rays
- Dynamite

In each case, an accidental discovery -- but
someone knew
they had something when they saw it!

What Is a New Product?

Figure
1.5

- *New-to-the-world (really-new) products (10% of new products)*
- *New-to-the-firm products (20%):* Products that take a firm into a category new to it.
- *Additions to existing product lines (26%):* Line extensions that flesh out the product line in current markets.
- *Improvements and revisions to existing products (26%):* Current products made better.

What Is a New Product?

Figure
1.5

- *Repositioning (7%)*: Products that are retargeted for a new use or application. Also includes retargeting to new users or new target markets.
- *Cost reductions (11%)*: New products that provide the customer similar performance but at a lower cost. May be more of a “new product” in terms of design or production.

What About...

- New Services?
- New Business-to-Business Products?
- New International/Global Products?

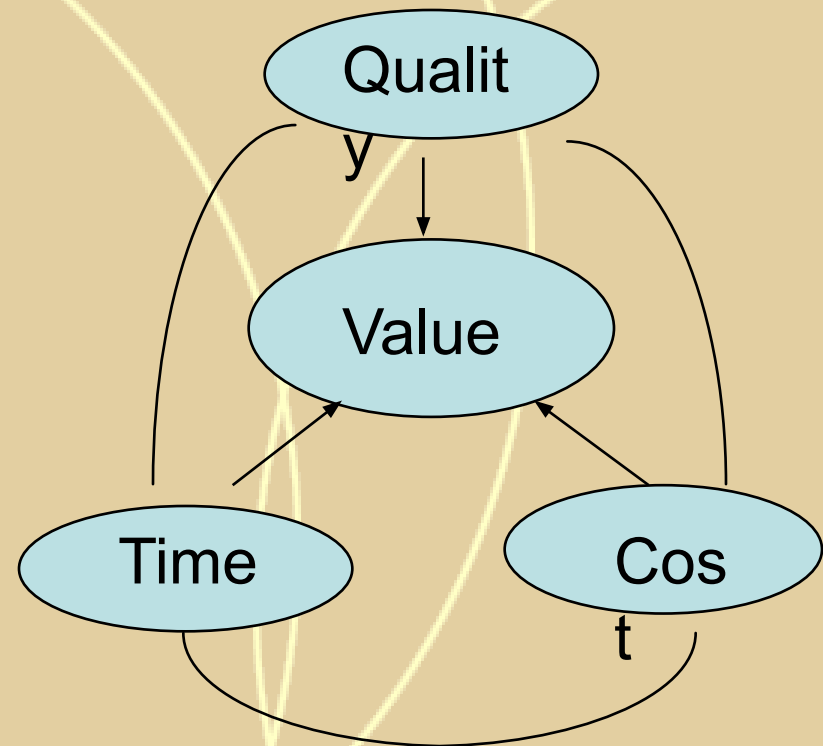
Classic Brand Names

- Coca-Cola
- Kodak
- General Electric
- Kleenex
- Ford
- Colgate
- Gillette

Which of these have the most value today as launch pads for new products?

The Conflicting Masters of New Products Management

- Three inputs to the new products process: the right quality product, at the right time, and at the right cost.
- Issue: how to optimize these relationships in a new product situation.



Breakthrough Innovations that Changed Our Lives

Figure
1.6

- Personal Computer
- Microwave Oven
- Photocopier
- Pocket Calculator
- Fax Machine
- Communication satellite
- Bar coding
- Answering Machine
- Touch-Tone Telephone
- Apollo Lunar Spacecraft
- Computer Disk Drive
- Organ Transplanting
- Fiber-Optic Systems

Chapter 2

The New Products Process

The Basic New Product Process

Phase 1: Idea Generation



Phase 2: Idea Screening



Phase 3: Business Analysis



Phase 4: Product Development



Phase 5: Test Marketing



Phase 6: Commercialization

The Basic New Product Process

Phase 1: Idea Generation

Internal sources: managers, engineers, planning department, board of directors, research department.

External sources: Customers, organizations, technical publications, advertising agencies, competitors, suppliers, universities etc

The Basic New Product Process

Phase 2: Idea Screening

Marginal ideas: Such ideas may be useful to the company in future. So, they should be kept stored for future.

Reject ideas: If some ideas are not possible to be useful to the company, such ideas should be discarded/ rejected.

The Basic New Product Process

Phase 3: Business analysis

Estimated sales,
Features of the product,
Competition of the market,
Expected rate of return and profitability,
Estimated cost,

The Basic New Product Process

Phase 3: Business analysis

Estimated sales,

Your company has created a drug that cures skin burns, and you have the following data:

- Averages burns per year in Jordan are 20.000 cases.
- The price of other drugs is between 10-20 JD and heal 70%.
- Your medicine heals 97%, and in less time.
- The total cost of your medication is 30 JD per box.
- The marginal profit is 100%.

The Basic New Product Process

Phase 3: Business analysis

Estimated cost

Your company it will create a new TV, and you have the following data, calculate the estimated cost for 1,000 unites:

- The cost of new line production is 50,000 JD, its capacity of production is 1000 units per month.
- Row materials to produce 1000 unites are: 50,000 JD.
- You will need 20 employees, the salary for each one is: 700 JD per month.
- Advertising: 10,000 JD

The Basic New Product Process

Phase 3: Business analysis

Estimated cost

Total cost per unit = T. Fixed cost/unit + T. Variable cost/unit

The Basic New Product Process

Phase 4: Product development

Functional testing: quality, size, durability etc.. This type of testing provides effectiveness of the product.

Consumers testing: For testing the consumers, sample of the new product should be distributed to the target consumers, and reaction of the consumers should be collected. This test is called consumer testing. Consumers interest, want, consumers' needs etc.

The Basic New Product Process

Phase 5: Test marketing

Reaction of the customers

Details about price

Quality

Distribution channel

The Basic New Product Process

Phase 6: Commercialization

Timing

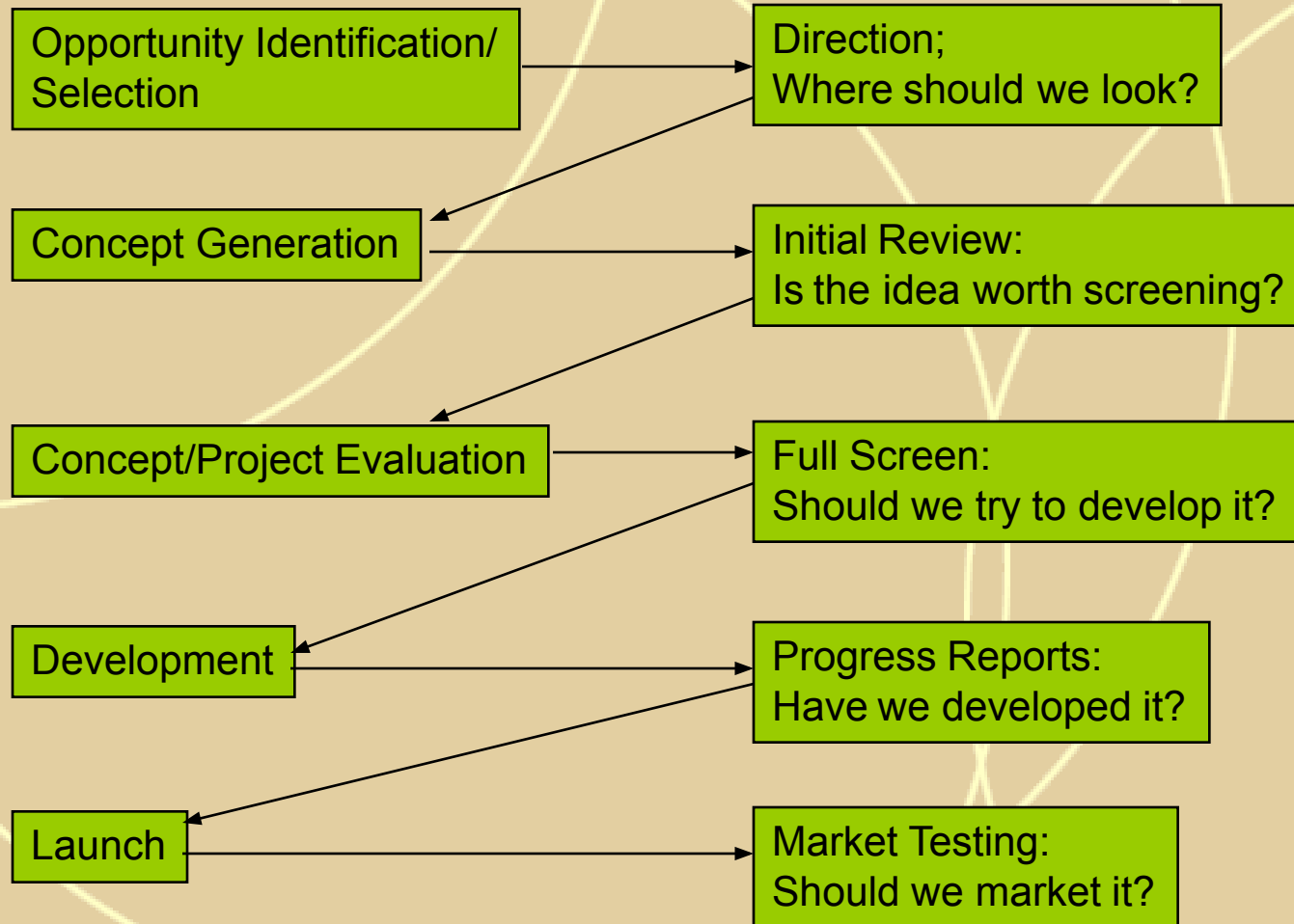
Place

Market segmentation

Strategy

The Evaluation Tasks in the New Products Process

Figure
2.2



Phase 1: Opportunity Identification/Selection

New product suggestions,
changes in marketing plan,
resource changes,
and new needs/wants in the marketplace.
Research, evaluate, validate, and rank them

Phase 2: Concept Generation

Select a high potential opportunity,
and begin customer involvement.

Collect available new product concepts that fit the
opportunity and generate new ones as well.

Phase 3: Concept/Project Evaluation

Evaluate new product concepts on technical, marketing, and financial criteria.

Rank them and select the best two or three.

Request project proposal authorization when have product definition, team, budget, skeleton of development plan, and final PIC.

Stages of Concept/Project Evaluation

- Screening (pre technical evaluation)
- Concept testing
- Full screening
- Project evaluation (begin preparing product protocol)

Phase 4: Development (Technical Tasks)

Specify the full development process, and its deliverables. Undertake to design prototypes, test and validate prototypes against protocol, design and validate production process for the best prototype, slowly scale up production as necessary for product and market testing.

Phase 4: Development (Marketing Tasks)

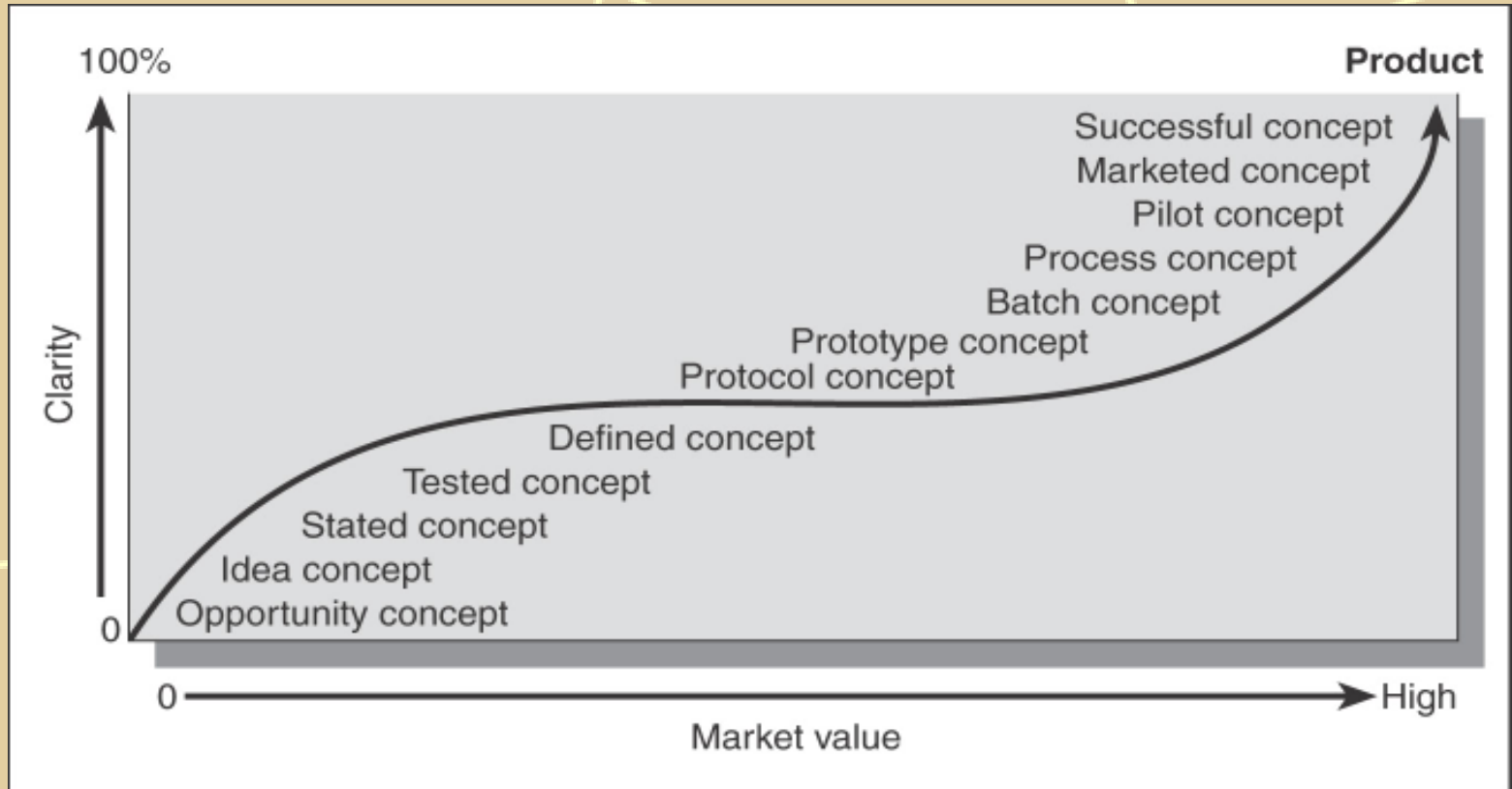
Prepare strategy, tactics, and launch details for marketing plan, prepare proposed business plan and get approval for it, (service, packaging, branding, etc.) and prepare for it.

Phase 5: Launch

Commercialize the plans and prototypes from development phase, begin distribution and sale of the new product (maybe on a limited basis) and manage the launch program to achieve the goals and objectives set in the PIC (as modified in the final business plan).

The Life Cycle of a Concept

Figure
2.3



Corresponding New Products Process Phases:

Opp. Identification → Concept Generation → Project Evaluation → Development → Launch

Techniques for Attaining Speed in a New Product Project

Figure
2.4

Organization Phase

- Use dedicated cross-functional teams.
- Use small groups to minimize bureaucracy.
- Empower, motivate it through rewards, and protect the team.
- Make sure supporting departments are ready.
- Develop affective team leadership.
- Transfer knowledge from one project to the next.

Techniques for Attaining Speed (continued)

Figure
2.4
(cont'd.)

Intensify Resource Commitments

- Integrate vendors, reduce numbers as necessary
- Integrate other technology resources
- Integrate resellers
- Get users involved early, capture the Voice of the Customer
- Use simultaneous engineering
- Get suppliers involved through alliances

Techniques for Attaining Speed (continued)

Figure
2.4
(cont'd.)

Design for Speed

- Computer-aided design for rapid prototyping
- Design-aided manufacturing
- Use common components across families
- Make the product easy to test
- Design in the qualities that lead to fast trial

Techniques for Attaining Speed (continued)

Figure
2.4
(cont'd.)

Prepare for Rapid Manufacturing

- Simplified documentation
- Use standardized process plans
- Use computer-aided manufacturing
- Go to just-in-time delivery (flexible manufacturing)
- Integrate product use testing

Techniques for Attaining Speed (continued)

Figure
2.4
(cont'd.)

Prepare for Rapid Marketing

- Use rollouts in place of test markets
- Seed the firm's reputation ahead of marketing
- Invest in immediate market awareness,
- Facilitate trial purchasing
- Get customer service capability in place ahead of need

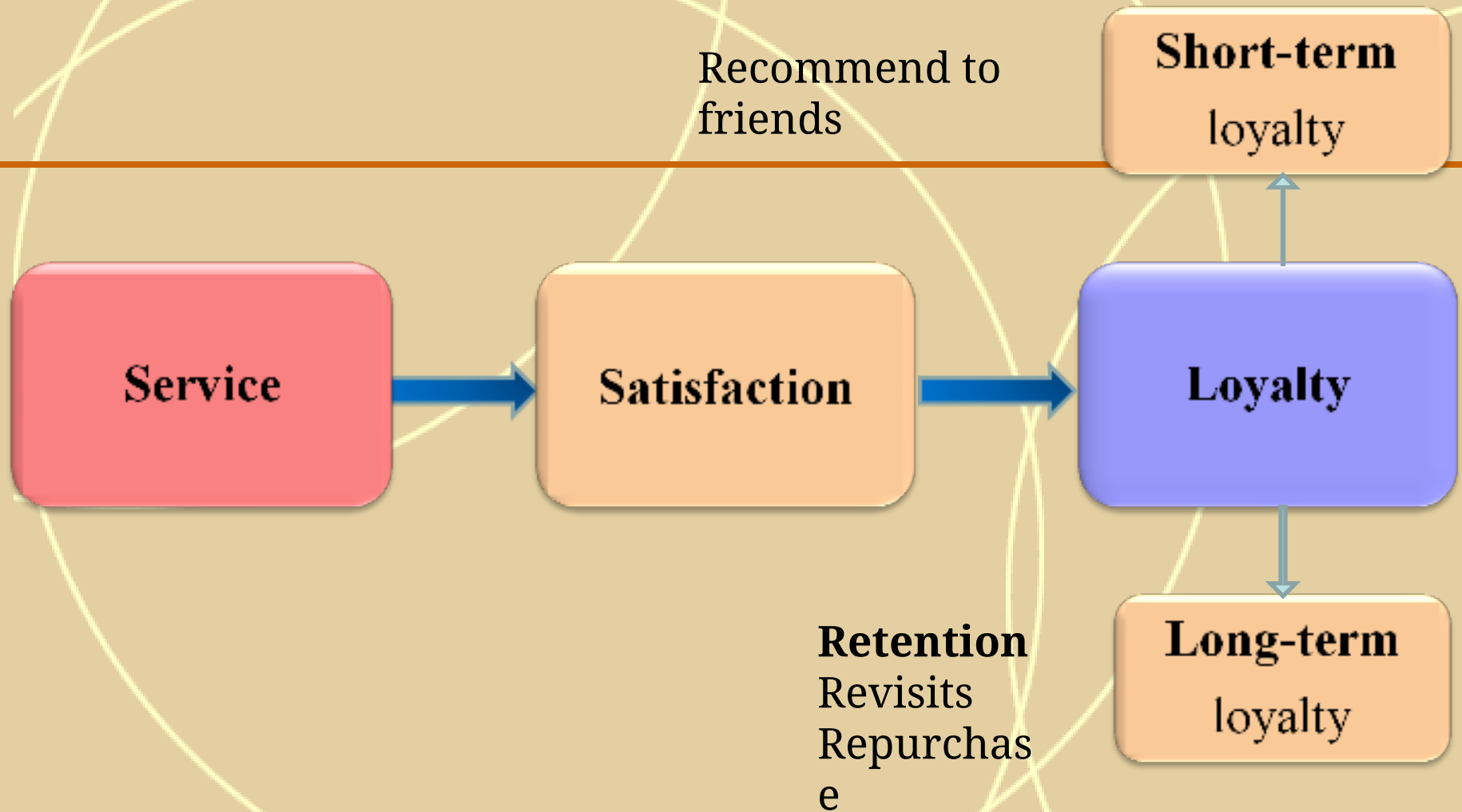
Other Considerations in Cycle Time Acceleration

Figure
2.5

- Do the job right the first time
- Look at every step, every action, every meeting; small savings add up
- Train every one involved
- Communicate
- Be flexible
- Make fast decisions
- Cut things wisely

What About New Services?

- Successful new services tend to come from firms that use a systematic process much like the new products process – the tools all fit.
- Iterations may be more frequent since they are less expensive.
- Unique, superior service, providing value and benefit as perceived by the customer, must be delivered, to achieve success.
- Speed to market with services is important, especially in enhancing reputation, image, and customer loyalty.





Accessibility



Reliability



Understanding



Credibility



Security



Competence



Responsiveness



Communication



Empathy



Tangibles

What About New-to-the-World Products?

- The challenges are different, but the first phase remains the same: opportunity identification and development of a strategic statement.
- Clear connection required between the radical innovation and the firm's strategic vision.
- A firm may establish a transition management team to move the R&D innovation project to business operating status.
- The new products process is more explanatory: need to bring in Voice of the Customer (VOC) early.
- Lead users may be critical here (see Chapter 5 discussion).

The Probe-and-Learn Process for New-to-the-World Products

- Focused (limited-performance) prototypes
 - Example: Iomega Zip Drive: over 50 prototypes were built to test out ideas with customers.
- “Lickety-Stick” iterative process: non-linear, more flexible process in which dozens of prototypes may be tried (“lickety”) before settling on one that customers like (“stick”).

Chapter 3

Opportunity Identification and Selection: Strategic Planning for New Products

Why Does a Firm Need a New Products Strategy?

- To chart the group's/team's direction
 - What technologies?/what markets?
- To set the group's goals and objectives
 - Why does it exist?
- To tell the group how it will play the game
 - What are the rules?/constraints?
 - Any other key information to consider?

Product Platform Planning

Many firms find that it is not efficient to develop a single product.

Platform: product families that share similarities in design, development, or production process.

Product Platform: as a set of systems and interfaces that form a common structure

- Car industry: \$3 billion price tag on a new car platform is spread out over several models.
- Sony: four platforms for Walkman launched 160 product variations.
- Boeing: passenger, cargo, short- and long-haul planes made from same platform.
- P&G: Liquid Ariel for European market, Liquid Tide for North America, and Liquid Cheer for Japanese market.
- Black & Decker: uses a single electric motor for dozens of consumer power tools.

Opportunity Identification: Greenfield Markets

Figure
3.2

- **Find another location or venue.** Once McDonald's had taken up the best locations for traditional fast-food restaurants, it continued its U.S. expansion by placing stores inside Wal-Marts, in sports arenas, and elsewhere. Starbucks Coffee complemented coffee-shop sales by selling its coffee beans and ice creams in supermarkets.
- **Leverage your firm's strengths in a new activity center.** Nike has recently moved into golf and hockey, and Honeywell is looking into casino opportunities.
- **Identify a fast-growing need,** and adapt your products to that need. Hewlett-Packard followed the need for "total information solutions" that led it to develop computing and communications products for the World Cup and other sporting events.
- **Find a "new to you" industry:** P&G in pharmaceuticals, GE in broadcasting (NBC), Disney in cruises, Rubbermaid in gardening products – either through alliance, acquisition, or internal development.

Source: Allan J. Magrath, "Envisioning Greenfield Markets," *Across the Board*, May 1998, pp. 26-30.

What is the Product Innovation Charter (PIC)?

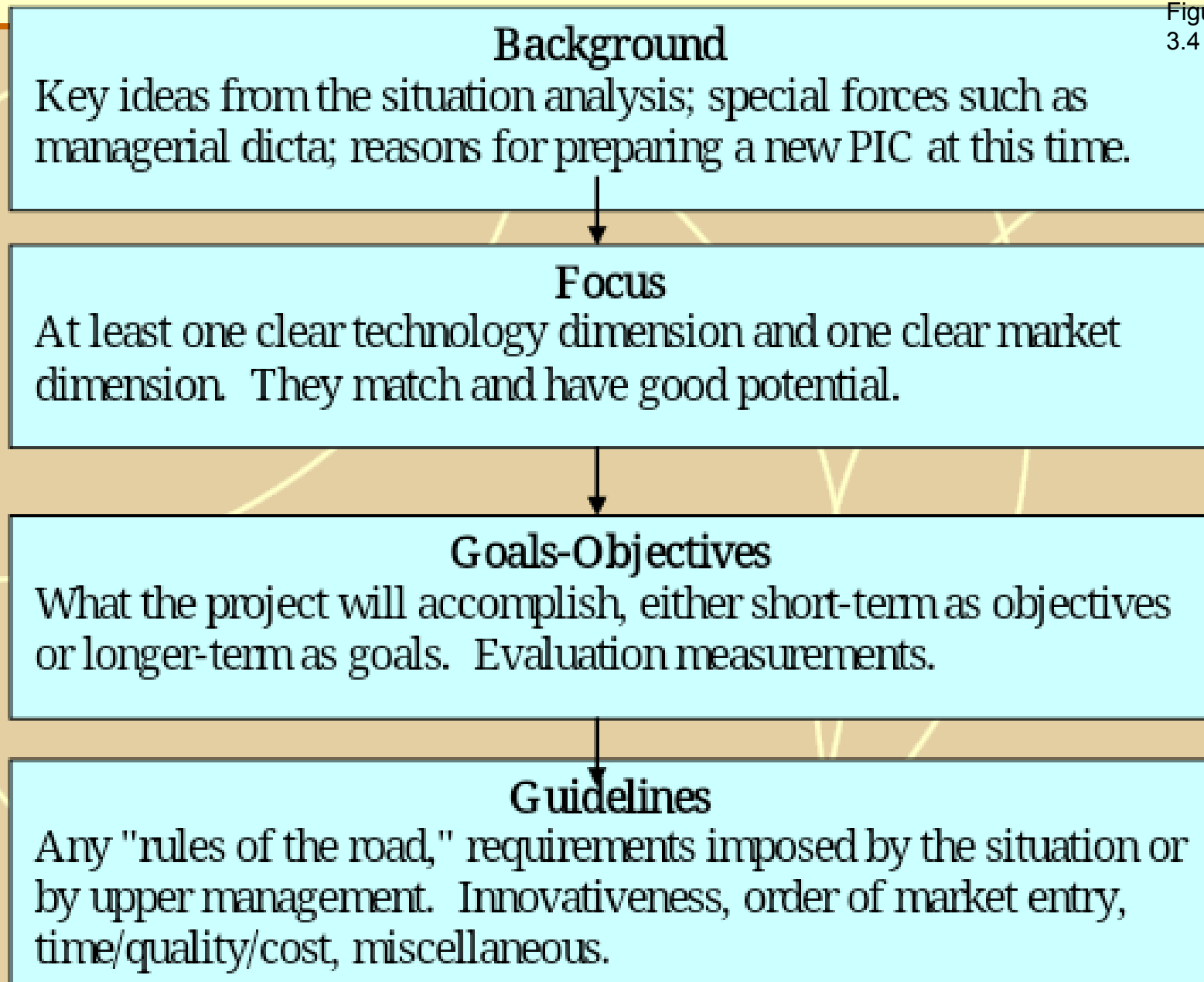
- It is the new product team's strategy.
 - It is for Products (not processes).
 - It is for Innovation (think of the definition of new product).
 - It is a Charter (a document specifying the conditions under which a firm will operate).
- Typically, it is a document prepared by senior management designed to provide guidance to the strategic business units (SBUs) on the role of innovation.

Do Many Firms Have a PIC?

- Most do, according to research, even if they don't call it by that name.
- PDMA study:
 - 75% of firms have a formal new product policy of some type (a partial PIC)
 - 29% have a formal, written complete PIC.
 - 80% of firms have formalized at least a few of the phases in the new products process.
- According to an independent study:
 - The more detailed and specific the PIC, the higher are the firm's innovation rates.
 - The more specific the corporate mission and senior management direction is spelled out in the PIC, the better is the performance of the firm's new products.

The Contents of a Product Innovation Charter

Figure
3.4



A Sample PIC for a Chemical Product

Figure
3.5

Focus: The XYZ Company is committed to a program of innovation in specialty chemicals, as used in the automobile and other metal finishing businesses, to the extent that we will become the market share leader in that market and will achieve at least 35 percent ROI from that program on a three-year payout basis. We seek recognition as the most technically competent company in metal finishing.

Goals-Objectives: These goals will be achieved by building on our current R&D skills and by embellishing them as necessary so as to produce new items that are demonstrably superior technically, in-house, and have only emergency reliance on outside sources. The company is willing to invest funds, as necessary, to achieve these technical breakthroughs.

Guidelines: Care will be taken to establish patent-protected positions in these new developments and to increase the safety of customer and company personnel.

PIC Special Guidelines

- **Degree of Innovativeness**
 - First-to-market
 - Adaptive product
 - Imitation (emulation)
- **Timing**
 - First
 - Quick second
 - Slow
 - Late
- **Miscellaneous**
 - Avoidance of competition with certain firms
 - Recognition of weaknesses
 - Patentability
 - Product Integrity

How to prepare a product innovation Charter

- Looking for opportunities, inside the firm or outside it
- Evaluating and ranking the opportunities
- Simply begin filling out the PIC from: focus, goals, and guidelines

Tips for PIC Development

- Note where you are starting -- what decisions have already been made?
- Watch for any and all opportunities.
- Confirm interesting opportunities.
- Keep balance between focus and freedom.
- Speed usually assumed a well-established.
- PICs less useful in cases where personal tastes rule (art, games, foods) or where the biggest task is developing a new technology (wait till you have it).

More Tips

- Poor implementation will still ruin a good PIC (e.g., Bic perfume in lighter fluid package).
- Watch for PIC conflicts -- e.g., a “flood the market” line extension strategy may hurt real innovation. Some charters dictate separate organizations.
- Once in place, live by it. Use at all stages -- organization, concept generation, concept evaluation, technical, and, yes, marketing!
- Change it only when necessary, or when you get information you have been waiting for.

Product portfolio analysis: the new product's strategic fit

Dimensions for Assessing Strategic Fit

- Strategic goals (defending current base of products versus extending the base).
- Project types (fundamental research, process improvements, or maintenance projects).
- Short-term versus long-term projects.
- High-risk versus low-risk projects.
- Market familiarity (existing markets, extensions of current ones, or totally new ones).
- Technology familiarity (existing platforms, extensions of current ones, or totally new ones).
- Ease of development.
- Geographical markets (North America, Europe, Asia).

Chapter 4

Creativity and the Product Concept

Obstacles to idea generation

Group think: we think we are being creative, when in reality we are only coming up with ideas that our group will find acceptable.

Targeting error: we keep going back to the same simple demographic targets.

Poor customer knowledge: despite the money spent on market research by the top firms, the reality is that little is understood about prospective customers.

Complexity: creative types within organizations, as well as senior management, often think that the more complex the idea, the better it is.

Obstacles to idea generation

Lack of empathy: these same managers are well-educated, high-income individuals accustomed to an upscale lifestyle. They simply not understand the typical customer they are trying to sell to.

Too many cooks: a small new product team works fine, but large companies especially are prone to internal competition for power and influence. This is not healthy climate for a new product in the earliest phases of development.

Barriers to Firm Creativity

Figure
4.4

- **Cross-functional diversity:** Diversity leads to more creative stimulation but also to problem solving difficulties.
- **Allegiance to functional areas:** Team members need to have a stake in the team's success, or won't be loyal to the team.
- **Social cohesion:** If interpersonal ties among team members are too strong, candid debate may not occur, resulting in less innovative ideas.
- **Role of top management:** Management should encourage the teams to be adventurous, otherwise only incremental changes will occur.

The Role of Management in Stimulating Creativity

- Recognize individuality
- Be tolerant of mistakes
- Be supportive under stress
- Techniques include:
 - Competitive teams
 - Idea bank of unused ideas for possible reuse
 - Encourage interaction – even in how offices are laid out

What is a Product Concept?

- A product concept is a verbal or prototype statement of what is going to be changed *and* how the customer stands to gain or lose.
- Rule: You need *at least two* of the three inputs to have a feasible new product concept, and *all three* to have a new product.

Required Inputs to the Creation Process

- **Form** (the physical thing created, or, for a service, the set of steps by which the service will be created)
- **Technology** (the source by which the form is to be attained)
- **Benefit/Need** (benefit to the customer for which the customer sees a need or desire)

Technology permits us to develop a *form* that provides the *benefit*.

Some Patterns in Concept Generation

Customer need → firm develops technology
→ produces form

Firm develops technology → finds match to
need in a customer segment → produces form

Firm envisions form → develops technology to
product form → tests with customer to see
what benefits are delivered

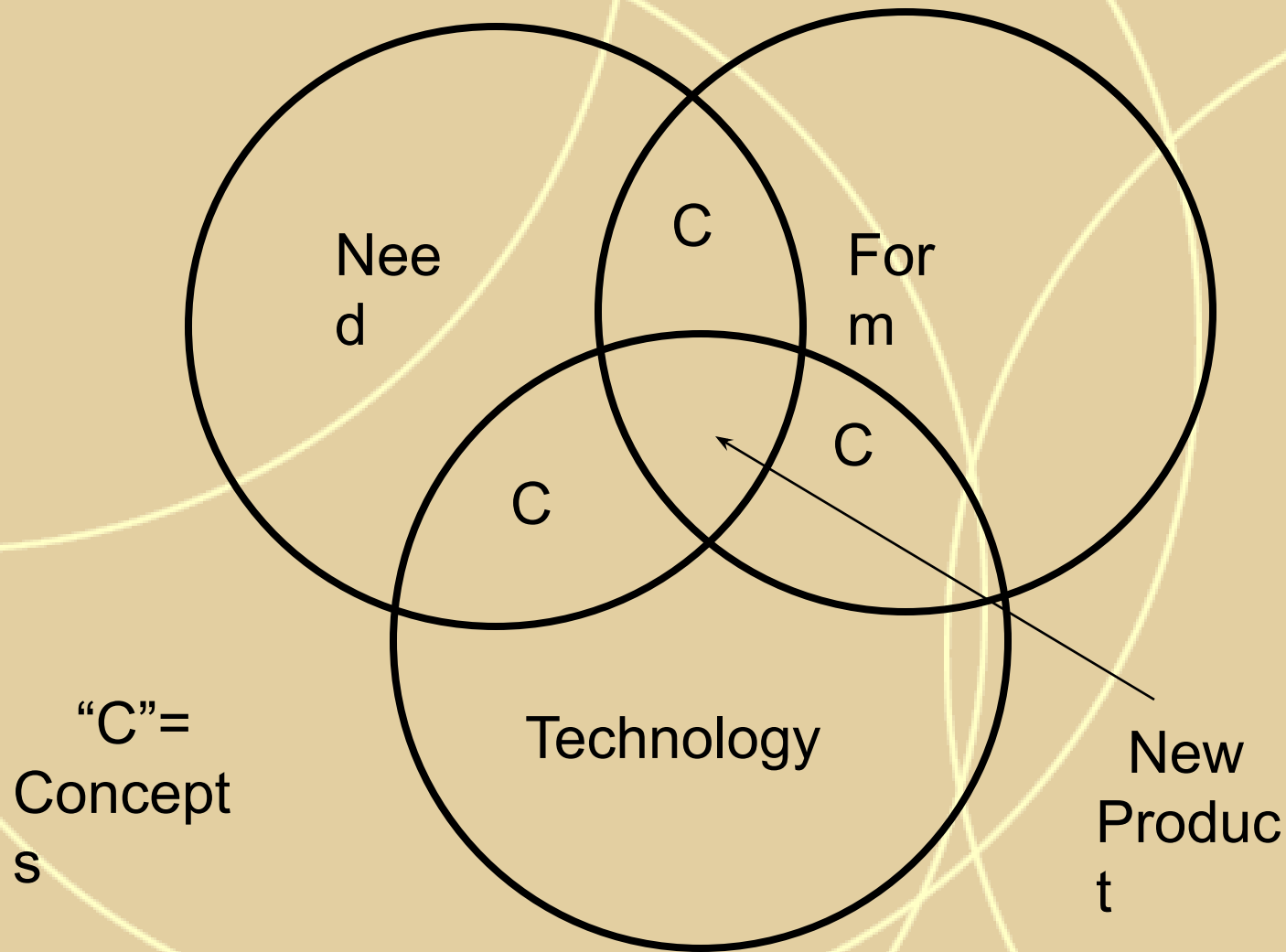
*Note: the innovation process can start with
any of the three inputs.*

Why Do You Need a Product Concept and Not Just an Idea?

- Needed to judge whether it is worthy of development
- Potential customers do not have enough information to judge the worthiness of an idea: the product concept gives them the required information.
- Ex.: Would a taxi operator like cars with a 10 cents per mile operating cost? (need)
 - Not if it used Caterpillar tractor technology instead of wheels! (need plus technology)

New Product Concepts and the New Product

Figure
4.4



The Designer Decaf Example

- *Benefit*: “Consumers want decaffeinated espresso that tastes identical to regular.”
- *Form*: “We should make a darker, thicker, Turkish-coffee-like espresso.”
- *Technology*: “There’s a new chemical extraction process that isolates and separates chemicals from foods; maybe we can use that for decaffeinating espresso coffee.”

Why would each of these taken individually not be a product concept?

The Toilet Brush Example

- Idea: A new and improved toilet brush.
- Concept: A toilet brush that contains detergent, refillable, and easy for the customer to attach to the handle.
- Product (executions of this concept):
 - Lysol Ready Brush
 - Scrubbing Bubbles Fresh Brush
 - Clorox Toilet Wand
 - Others?

What a Concept Is and Is Not

IS: “Learning needs of computer users can be met by using online systems to let them see training videos on the leading software packages.” (good concept; need and technology clear)

IS NOT: “A new way to solve the in-home training/ educational needs of PC users.” (need only; actually more like a wish)

IS NOT: “Let’s develop a new line of instructional videos.” (technology only, lacking market need and form)

Methods for Generating Product Concepts

Two Broad Categories of Methods:

- Gathering Ready-Made Product Concepts
- Using a Managed Process Run by the New Products Team

Best Sources of Ready-Made New Product Concepts

Figure
4.5

- New Products Employees
 - Technical: R&D, engineering, design
 - Marketing and manufacturing
- End Users
 - Lead Users
- Resellers, Suppliers, Vendors
- Competitors
- The Invention Industry (investors, etc.)
- Idea exploration firms and consulting engineers
- Miscellaneous (continued)

Best Sources of Ready-Made New Product Concepts (continued)

Figure
4.5

- Miscellaneous Categories
 - Consultants
 - Advertising agencies
 - Marketing research firms
 - Retired product specialists
 - Industrial designers
 - Other manufacturers
 - Universities
 - Research laboratories
 - Governments
 - Printed sources
 - International
 - Internet

Lead Users

- An important source of new product ideas.
- Customers associated with a significant current trend.
- They have the best understanding of the problems faced, and can gain from solutions to these problems.
- In many cases, have already begun to solve their own problems, or can work with product developers to anticipate the next problem in the future.

Toolkits for User Innovation

- A set of design tools that customers can use to customize a product best suited to them.
- Can incorporate CAD/CAM or rapid prototyping.
- Example: International Flavors and Fragrances: Internet-based toolkit that provides a database of flavor profiles and rules on how to combine them. Customer can specify flavor mixes that are immediately made into samples; customer can then make adjustments until the desired flavor is obtained.

Open Innovation

- The process by which a firm searches for research, innovation, technologies, and products.
- Increases speed of research and innovation, cuts risks, and generates new innovative ideas.
- Viewed by some as the dominant innovation model of the 21st century.
- Inputs can come from internal sources (marketing, strategic planning) and external ones (customers, market information, etc.).
- Sources such as inventors, startup companies, or university laboratories are actively sought out.

Open Innovation at Work: P&G

- P&G's "Connect and Develop" program, designed to allow for internal intellectual property to be marketed outside, spun off, or licensed.
- Avoids the "not invented here" syndrome.
- To execute Connect and Develop, P&G assigned a team to find external partners, build brand equity, access new technologies, and create new product categories.
- Examples:
 - SunHealth Solutions (a P&G partner) developed the UV sensing technology used in Huggies swimpants with UV sensors, that help parents monitor their child's exposure to UV radiation.
 - Mr. Clean scrubbing brush uses technology originally used as insulation in the auto industry.
 - Magic Eraser cleaning pad was sourced from a German chemicals company, and first noticed by P&G in use in Japan.